

# **Storms of 1858 - 1864**

## Introduction.

The present report describes results of continuing activities performed by its author in connection with the effort of improving historical knowledge of tropical cyclones to be used in studies determining their 1851-1920 frequency over the Atlantic Ocean. The study of storms of tropical nature which occurred in the late 1850's and early 1860's was addressed as a continuation of the previous activities which covered the 1851-1857 period (Fernandez-Partagas, 1994). Findings resulting from reviewing previously known storm cases and from documenting new ones for the seven years from 1858 to 1864 are presented here. These seven years represent approximately one-third of the period 1851-1870, which is just prior to the documentation by Neuman et al (1993) that starts in 1871.

## Sources and methods.

As in Fernandez-Partagas (1994), the reviewing of previously known storms made use of available lists from various authors, such as Tannehill (1938), Garriott (1900), Alexander (1902), Dunn and Miller (1960) and Ludlum (1963). The Tannehill's list served as an initial source and cases mentioned by the other authors and that were not listed by Tannehill (1938) were then added in order to obtain all previously known storms for the 1858-1864 period. For some storms, the authors have just indicated their place and time of occurrence; for other storms, however, they have given full accounts of them. Therefore, the author of this study decided to put together what the various authors have expressed about each storm and to supplement their information by using what appears in other books or articles (Sullivan, 1986; Tucker, 1982; Rodriguez-Ferrer, 1876; Martinez-Fortun, 1942) and what was published in newspapers, primarily in The New York Times and in The Times (London).

The kind of newspaper information used in this study was the same described in Fernandez-Partagas (1994). It should be emphasized that such information, containing general news about storm occurrences and narratives of weather events encountered by vessels, was not only important in revealing additional findings about already known storm cases but in allowing the author of this study to document a large number of new storms whose existence was unknown before.

## Results.

The detailed study of the 1858-1864 storms is presented in the Appendix. The Appendix presents 48 storms on a one-by-one basis for the seven-year period. Only 14 of these storms were previously known cases and the author of this study newly documented the 34 remaining cases. These 34 new storms represent 70.8 percent of the

48 cases which are now known to have occurred over the period 1858-1864. Tannehill (1938) listed only 12.5 percent of these cases and other authors mentioned the remaining 16.7 percent. The author's contribution of 34 new cases represents a 242.9 percent increase in the number of known storms for the period 1858-1864. This contribution is almost four times larger than the corresponding 61.5 percent increase made by him for the period 1851-1857, which can be inferred from Fernandez-Partagas (1994). The very large author's contribution for the period 1858-1864 makes doubtful the validity of a statement by Tannehill (1938) in that, for the years from 1857 to 1866, "there appears to have been a remarkable scarcity of violent hurricanes".

As in Fernandez-Partagas (1994), no attempt to classify storms as tropical storms and hurricanes was formally made. However, a discussion about the intensity of particular storms was included for a large number of cases. Each storm in the Appendix was identified by the number it had in chronological order of detection throughout its corresponding year. The known life-span was denoted in brackets following the storm identification. For instance, the sixth storm of 1859 was referred to as Storm 6, 1859 (Oct. 2-6). No specific days of the month were known for two storm cases and there was a third case for which the month it occurred was found to be uncertain.

The 48 cases which are now known to have occurred over the 1858-1864 period are listed in Table 1. Information about whether or not each storm was a newly documented case and about whether or not a track for it was achieved is included in this table. Storms which directly affected land are listed in Table 2. This table shows that 21 out of the 48 storms (or 43.8 percent of the storms) did affect land. This 43.8 percent was found to be significantly smaller than the 64.3 percent corresponding to the 1851-1857 period, which can be inferred from Fernandez-Partagas (1994). The 20.5 decrease from the period 1851-1857 to the period 1858-1864 reveals a strong tendency for the storms in the latter period to have remained at sea more frequently than those storms in the previous seven-year period.

Some of the decisions which were required during the study of the above 48 storms were difficult to make. For instance, the author questioned whether or not to accept new storm cases which were found at high latitudes. In general, these storms were accepted in August and September when they were apparently coming from lower latitudes and/or they were attained by severe gales or hurricane winds. As stated in Fernandez-Partagas (1994), the reasoning behind accepting these storms is that storms of tropical origin occurring during these peak months of the hurricane season tend to bring their own characteristics to high latitudes and to only gradually evolve into extratropical systems. Caution was taken, however, in accepting high latitude storms in other months of the hurricane season. The problem of accepting storms previously mentioned in hurricane literature and about whose existence the author is skeptical (Fernandez-Partagas, 1994) was not found to be important because only one case of this nature was found for the period 1858-1864.

Determination of a track was feasible for 35 out of the 48

**Table 1**  
**List of Storms**  
**(1858-1864)**

List No.	Ident. # & Date	Newly Documented	Track Achieved
1	Storm 1, 1858 (Jun.12)	Yes	No
2	Storm 2, 1858 (Aug. 5)	Yes	No
3	Storm 3, 1858 (Sept.14-16)	No	Yes
4	Storm 4, 1858 (Sept. 17-18)	Yes	Yes
5	Storm 5, 1858 (Sept. 22-24)	Yes	Yes
6	Storm 6, 1858 (Sept.22-25)	Yes	Yes
7	Storm 7, 1858 (Oct. 21-25)	Yes	Yes
8	Storm 1, 1859 (Jun. or early Jul.)	Yes	No
9	Storm 2, 1859 (Aug. 17-19)	Yes	Yes
10	Storm 3, 1859 (Sept. 2)	No	Yes
11	Storm 4, 1859 (Sept. 12)	Yes	No
12	Storm 5, 1859 (Sept. 15-16)	No	No
13	Storm 6, 1859 (Oct. 2-6)	No	Yes
14	Storm 7, 1859 (Oct. 16-17)	Yes	Yes
15	Storm 8, 1859 (Oct. 28-Nov.2)	Yes	Yes
16	Storm 1, 1860 (Aug. 8-12)	No	Yes
17	Storm 2, 1860 (Aug. 24-25)	Yes	Yes
18	Storm 3, 1860 (Sept. 11)	Yes	No
19	Storm 4, 1860 (Sept. 11-15)	No	Yes
20	Storm 5, 1860 (Sept. 18-21)	Yes	Yes
21	Storm 6, 1860 (Sept. 30-Oct.3)	No	Yes
22	Storm 7, 1860 (Oct. 20-23)	Yes	Yes
23	Storm 1, 1861 (Jul.6-12)	No	Yes

24	Storm 2, 1861 (Aug. 14-17)	No	Yes
25	Storm 3, 1861 (Aug. 25-30)	Yes	Yes
26	Storm 4, 1861 (Sept. 17)	Yes	No
27	Storm 5, 1861 (Sept. 27-28)	No	Yes
28	Storm 6, 1861 (Early Oct.)	Yes	No
29	Storm 7, 1861 (Oct. ?)	No	No
30	Storm 8, 1861 (Nov. 1-3)	No	Yes
31	Storm 1, 1862 (Jun. 15-17)	Yes	Yes
32	Storm 2, 1862 (Aug. 18-20)	Yes	Yes
33	Storm 3, 1862 (Sept. 12-19)	Yes	Yes
34	Storm 4, 1862 (Oct. 5-6)	Yes	No
35	Storm 5, 1862 (Oct. 14-16)	Yes	Yes
36	Storm 1, 1863 (Aug. 8-9)	Yes	Yes
37	Storm 2, 1863 (Aug. 18-19)	Yes	Yes
38	Storm 3, 1863 (Aug. 19-23)	Yes	Yes
39	Storm 4, 1863 (Aug. 27-28)	Yes	Yes
40	Storm 5, 1863 (Sept. 9-16)	Yes	Yes
41	Storm 6, 1863 (Sept. 16-18)	No	Yes
42	Storm 7, 1863 (Sept. 18-19)	Yes	No
43	Storm 8, 1863 (Sept. 26)	Yes	Yes
44	Storm 1, 1864 (Jul. 16-18)	Yes	Yes
45	Storm 2, 1864 (Jul. 25)	Yes	No
46	Storm 3, 1864 (Aug. 26-31)	No	Yes
47	Storm 4, 1864 (Sept. 5-8)	Yes	No
48	Storm 5, 1864 (Oct. 22-24)	Yes	Yes

**Table 2**  
**List of the storms which directly affected**  
**land over the period 1858-1864**

List No. (Table 1)	Ident. # & Date	Areas Affected
3	Storm 3, 1858 (Sept. 14-16)	FL, NY, New England
6	Storm 6, 1858 (Sept. 22-25)	S.E. Bahamas
7	Storm 7, 1858 (Oct. 21-25)	S.E. Bahamas, Bermuda
8	Storm 1, 1859 (Jun. or early Jul.)	Tuxpan
10	Storm 3, 1859 (Sept. 2)	St. Kitts, St. Croix
12	Storm 5, 1859 (Sept. 15-16)	Mobile
13	Storm 6, 1859 (Oct. 2-6)	Cuba, S.E. Bahamas
14	Storm 7, 1859 (Oct. 16-17)	Bahamas, FL
16	Storm 1, 1860 (Aug. 8-12)	LA, MS, AL
19	Storm 4, 1860 (Sept. 11-15)	LA, MS, AL
21	Storm 6, 1860 (Sept. 30-Oct. 3)	LA, MS
23	Storm 1, 1861 (Jul. 6-12)	Guadeloupe, St. Kitts
24	Storm 2, 1861 (Aug. 14-17)	Bahamas, S. FL
27	Storm 5, 1861 (Sept. 27-28)	NC, VA, MD, DE, NJ, NY, New England
29	Storm 7, 1861 (Oct. ?)	Cape Hatteras
30	Storm 8, 1861 (Nov. 1-3)	FL, NC, VA, MD, DE, NJ, NY, New England
34	Storm 4, 1862 (Oct. 5-6)	Barbados, St. Lucia, St. Vincent
38	Storm 3, 1863 (Aug. 19-23)	Nova Scotia

41	Storm 6, 1863 (Sept. 16-18)	FL S.E. Coast, N.W. Bahamas, NC, VA, MD, DE, NJ, NY, New England
42	Storm 7, 1863 (Sept. 18-19)	Tampico
46	Storm 3, 1864 (Aug. 26-31)	Martinique, Belize

storms in the 1858-1864 period. Of course, a track was achieved only for the known life-span of the storms, which might be, in many cases, just a portion of their real lives. As it was done in Fernandez-Partagas (1994), it should be emphasized that the tracks prepared for these storms are far less accurate than the ones achieved for today's tropical cyclones. Rather than as showing the exact displacement of the storm's center from one time to another, tracks should be interpreted as describing the general motion of the storm from one area to another. Estimated positions for 7 A.M. EST on consecutive days, which might very frequently have errors of at least 100 miles over the open sea but that were more reliable near and over land, were joined by smooth curves to produce the tracks displayed in Figs. 1 to 7. Estimated 7 A.M. positions were denoted by black dots along the tracks, with adjacent numbers indicating the day of the month. The month was indicated only for the starting day of each track and, in addition, for the first day of the month when the track continued from one month to the next. The storm number was indicated by a larger size digit placed near the beginning of the track.

There was a relatively small number of storms (13 out of the 48 cases in the 1858-1864 period) for which no track could be determined. These storms were also shown in Figs. 1 to 7. These latter cases were denoted by a cross located at the place where the storm occurred, and the known life-span and the storm number were written down in the vicinity of the cross.

For the period 1858-1864, tracks for 72.9 percent of the storms were achieved. This value represents a substantial increase from the 57.1 percent obtained for the 1851-1857 period (Fernandez-Partagas, 1994).

Finally, if results shown in Fernandez-Partagas (1994) and in the present report were combined, they would confirm preliminary findings in Fernandez-Partagas (1992) in regard that what appeared published in newspapers was crucial in obtaining additional information on already known storms and in documenting new storm cases in the nineteenth century: Information which appeared primarily in The New York Times and its predecessor The New-York Daily Times and in The Times (London) has allowed the author to increase from 40 to 90 the number of the known storms for the 14-year period from 1851 to 1864 and it has also helped him in determining a track for 59 out of these 90 storms.



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## Captions

- Fig. 1 Storms of 1858. Black dots along the tracks denote estimated positions at 7 A.M. EST. Crosses indicate the location of storms for which no track could be achieved.
- Fig. 2 Same as Fig. 1 but for 1859.
- Fig. 3 Same as Fig. 1 but for 1860.
- Fig. 4 Same as Fig. 1 but for 1861.
- Fig. 5 Same as Fig. 1 but for 1862.
- Fig. 6 Same as Fig. 1 but for 1863.
- Fig. 7 Same as Fig. 1 but for 1864.